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|-------------------------------|-----------------|-------------------|--|
| <b>Notice of Allowability</b> | Application No. | Applicant(s)      |  |
|                               | 09/874,032      | HYNECEK, JAROSLAV |  |
|                               | Examiner        | Art Unit          |  |
|                               | Nhan T. Tran    | 2615              |  |

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment and Terminal Disclaimer filed 2/7/2006 and phone interview on 2/14/2006.
2. ☒ The allowed claim(s) is/are 1-3, 7-10 and 13-16.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
  - \* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |   |   |
|---|---|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)                       |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment                               |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material          | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance              |
|   | 9. <input type="checkbox"/> Other _____.  |

## DETAILED ACTION

### *Terminal Disclaimer*

Terminal disclaimer filed on 2/7/2006 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of the full statutory term prior patent No. 6,580,106 has been reviewed and is accepted. The terminal disclaimer has been recorded.

## EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with **John E. Vandigriff** on 2/14/2006. Claims 1, 2, 7, 8, 13 & 14 have been amended to clarify the claim language and to provide proper antecedent basis as set forth below:

Regarding **claim 1**, in lines 4-6 of claim 1, the limitations "having a gate surrounding a source and being conductively connected to the source." are replaced by -- having a gate surrounding a source, wherein the gate is conductively connected to the source. --.

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Regarding **claim 2**, in lines 2-3 of claim 2, the limitation “the punch through potential barrier of the vertical punch-through transistor.” is replaced by -- a punch through potential barrier of the vertical punch-through transistor. --.

Regarding **claim 7**, in lines 5-7 of claim 7, in line 5 of claim 1, the limitations “having a gate surrounding a source and being conductively connected to the source.” are replaced by -- having a gate surrounding a source, wherein the gate is conductively connected to the source. --.

Regarding **claim 8**, in lines 2-3 of claim 8, the limitation “the punch through potential barrier of the vertical punch-through transistor.” is replaced by -- a punch through potential barrier of the vertical punch-through transistor. --.

Regarding **claim 13**, in lines 3-5 of claim 13, the limitations “a charge detection device in said image sensor including a vertical punch-through transistor having the gate surrounding the source and being conductively connected to the source.” are replaced by -- a charge detection device in said image sensor including a vertical punch-through transistor having a gate surrounding a source, wherein the gate is conductively connected to the source. -

Regarding **claim 14**, in lines 2-3 of claim 14, the limitation “the punch through potential barrier of the vertical punch-through transistor.” is replaced by -- a punch through potential barrier of the vertical punch-through transistor. --.

***Allowable Subject Matter***

Claims 1-3, 7-10 & 13-16 are allowed.

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The following is an examiner's statement of reasons for allowance:

Regarding each of independent claims 1, 7 and 13, the prior art of record fails to teach or fairly suggest a charge detection device for use in an image sensor, a CMOS device or a CCD device in which the charge detection device includes a *vertical punch-through transistor* having a *gate surrounding a source*, wherein the gate is *conductively connected* to the source.

Regarding claims 2 & 3, these claims are allowed as being dependent from claim 1.

Regarding claims 8-10, these claims are allowed as being dependent from claim 7.

Regarding claims 14-16, these claims are allowed as being dependent from claim 13.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nhan T. Tran whose telephone number is (571) 272-7371. The examiner can normally be reached on Monday - Thursday, 7:30am - 5:30pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Ometz can be reached on (571) 272-7593. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

NT.



TUAN HO  
PRIMARY EXAMINER